Western Science

Department of Biology

Biology 2290F Course Outline

1. Course Information

Course Information
Biology 2290F/G is a teaching laboratory course in the UWO Biology program dedicated to enabling students to apply sound experimental investigation and analyses to biological questions. Selected technical, analytical, and communication skills are introduced in diverse biological contexts as students rotate through four areas of study.

The course is comprised of 3hrs of in-person laboratory/week plus 3 hrs of asynchronous online learning modules (OLMs)/week. The molecular biology/instrumentation unit is held in NCB 325/330 and field work/writing unit is held in NCB 331. **See schedule posed on OWL for more details.**

List of Prerequisites
A grade of at least 60% in Biology 1201a/1202b/1001a/1002b (Old 1222/1223) is a prerequisite for this course. Unless you have either the prerequisite for this course or written special permission from the academic counsellors in your faculty to enrol in it, you will be removed from the course and it will be deleted from your record. This decision may not be appealed. You will receive no adjustment to your fees in the event that you are dropped from the course for failing to have the prerequisites.

Unless you have either the requisites for this course or written special permission from your Dean to enroll in it, you may be removed from this course and it will be deleted from your record. This decision may not be appealed. You will receive no adjustment to your fees in the event that you are dropped from a course for failing to have the necessary prerequisites.

2. Instructor Information

Instructors	Email	Office	Office Hours
Dr. Michelle Belton (Course Coordinator)	mharris7@uwo.ca	NCB301C	By appointment
Dr. Tim Hain	thain@uwo.ca	NCB301F	By appointment
TAs: TBD			

1. When communicating with instructors and TAs, use your @uwo.ca email account only**.** We will not respond to emails originating from non-uwo email accounts. Not checking your UWO account is not a valid excuse for missing essential communication.

2. **Include 2290F plus your lab section number in the subject line of any emails that you send. Address professors with appropriate salutation.**

3. All emails will be responded to within 48 hours during weekdays (not including weekends and holidays). Emails will usually be addressed during regular work hours (9:00 am to 5:00 pm). We may choose, at our discretion, to respond outside these hours, depending on availability.

3. Course Syllabus, Schedule, Delivery Mode

A laboratory course designed to promote understanding of the scientific method by acquainting students with selected technical and conceptual tools that will enable them to generate, analyze and communicate data from experimental investigations of their own design in the areas of cell biology, population biology and genetics

Learning Outcomes:

1. Perform proper pipetting technique
2. Utilize and understand the operation of basic scientific instruments using proper technique
3. Understand the process of bacterial cloning and purpose of each step of the cloning process.
4. Explain downstream applications of bacterial cloning
5. Describe the purpose of different controls used in experiments
6. Analyze data derived from experiments
7. Create tables and figures appropriate for scientific communication
8. Design an experiment that uses ecological field methods, employing appropriate controls.
9. Describe and analyze the variation that exists within species and ecological communities.
10. Present the findings of an experiment as a poster.
11. Perform a literature review and summarize the findings.
12. Write a scientific review describing an evolutionary process.

Lab Schedule and Delivery Mode:

Section	Day/Time	Mode of Delivery
017	Monday 8:30-11:30	
002, 010, 018, 026	Monday 2:30-5:30	3 hours in-person lab 3 hours asynchronous online learning
003, 011, 019, 027	Tuesday 8:30-11:30	
004, 012, 020, 028	Tuesday 2:30-5:30	
006, 014, 022, 030	Wednesday 2:30-5:30	
007, 015, 023, 031	Thursday 8:30-11:30	
008, 016, 024, 032	Thursday 2:30-5:30	

Rotation Schedule

All sections will begin the course with the intro week which is 100% online, asynchronous learning. Following the intro week, students will move through two rotations (Molecular Biology/Instrumentation or Field Work/Writing) which consist of in-person labs and online learning modules. Half of the sections will begin with Molecular Biology/Instrumentation and the other half will begin with Field Work/Writing. See rotation schedule below for more details.

Rotation #	Unit	AM/PM	Monday	Tuesday	Wednesday	Thursday
Intro Week Sept 12-15	Intro	AM	017	003,011 019,027		007,015 023,031
Intro Week	Intro	PM	002,010 018,026	004,012 020,028	006,014 022,030	008,016 024,032
Rotation 1 Sept 19-Oct 27	Mol Bio Inst	AM		003 011		007 015
Rotation 1	Mol Bio Inst	PM	002 010	004 012	006 014	008 016
Rotation 1 Sept 19-Oct 27	Ecology Writing	AM	017	019 027		023 031
Rotation 1	Ecology Writing	PM	018 026	020 028	022 030	024 032
Rotation 2 Nov 7-Dec 8	Mol Bio Inst	AM	017	019 027		023 031
Rotation 2	Mol Bio Int	PM	018 026	020 028	022 030	024 032
Rotation 2 Nov 7-Dec 8	Ecology Writing	AM		003 011		007 015
Rotation 2	Ecology Writing	PM	002 010	004 012	006 014	008 016

Key Sessional Dates:

Classes begin: September 8, 2022
Fall Reading Week: October 31 – November 6, 2022
Classes end: December 8, 2022
Exam period: December 10 – 22, 2022

Contingency plan for an in-person class pivoting to 100% online learning

In the event of a COVID-19 resurgence during the course that necessitates the course delivery moving away from face-to-face interaction, affected course content will be delivered entirely online, either synchronously (i.e., at the times indicated in the timetable) or asynchronously (e.g., posted on OWL for students to view at their convenience). The grading scheme will **not** change. Any remaining assessments will also be conducted online as determined by the course instructor.

4. Course Materials

Students are responsible for checking the course OWL site (http://owl.uwo.ca) on a regular basis for news and updates. This is the primary method by which information will be disseminated to all students in the class.

All course material will be posted to OWL: http://owl.uwo.ca.

If students need assistance with the course OWL site, they can seek support on the OWL Help page. Alternatively, they can contact the Western Technology Services Helpdesk. They can be contacted by phone at 519-661-3800 or ext. 83800.

Technical Requirements
Biology 2290F/G requires that you have the following:

 Stable internet connection

 Laptop or computer

 Working microphone

 Working webcam

5. Methods of Evaluation

The overall course grade will be calculated as listed below:

Molecular Biology/Instrumentation unit assignments	35%
Field Work/Writing Unit assignments	35%
Final Exam	30%

Introductory Week:
Lab Safety – quiz (-1% if not complete by Sept 18th, ,11:55 pm)
Library Resources – quiz (-1% if not complete by Sept 18th, 11:55 pm)
Communicating Research – quiz (-1% if not complete by Sept 18th, 11:55 pm)
Academic Integrity and Plagiarism – quiz (-1% if not complete by Sept 18th 11:55 pm)

Molecular Biology/Instrumentation Unit Topics:
Week 1: Pipetting and Bacterial Cloning
Lab book check (1%)
Week 2: Transformation, plating and miniprep OR Spectrophotometry, standard curve and plate reader
Lab book check (1%)
Week 3: Transformation, plating and mini prep OR Spectrophotometry, standard curve and plate reader
Lab book check (1%)
Quiz (5%)
Week 4: Restriction mapping and experimental design OR Microscopy and pHing
Lab book check (1%)
Plating assessment OR pipetting assessment (2%)
Week 5: Restriction mapping and experimental design OR Microscopy and pHing

Plating assessment OR pipetting assessment (2%)
Lab book submission (5%)
Plasmid mapping report – due 5 class days after your final lab (5%)
Lab Report – due 5 class days after your final lab (10%)

Field Work/Writing Unit Topics:
Week 1: Experiment planning OR Writing 1 (online lesson)
Lab book check for experiment planning group (1%)
Week 2: Experimentation OR Writing 2 (online peer review)
Lab book check for experimentation group (1%)
Written assignment due 10 days after your scheduled lab (15%)
Week 3: Data collection and analysis in hours 2 and 3 OR Experiment planning in hour 1
Lab book check for both groups (1%)
Poster presentation due 10 days after your scheduled lab (15%)
Week 4: Writing 1 (online lesson) OR Experimentation
Lab book check for experimentation group (1%)
Week 5: Writing 2 (online peer review) OR Data collection and analysis in hours 1 and 2
Lab book check for data analysis group (1%)
Written assignment due 10 days after your scheduled lab (15%)
Poster presentation due 10 days after your scheduled lab (15%)
Successful completion of knowledge check quizzes during this rotation is worth 2%

Course Policies:
In Biology 2290F/G participation/attendance will be required for in-person activities.

- Students missing more than 2 in-person labs per unit will receive a **grade of "F" for the entire course.**
- This "F" may be revised to "INC" (incomplete) only upon recommendation from the academic counsellors in your Dean's Office in cases of documented health or compassionate concerns. If an INC is granted by the academic counsellors, then the INC will be completed at the next offering of the course provided that the course is not full.
- Course material (i.e. **lecture slides, videos, and other supplementary material** posted on OWL), **team projects, assignments, quizzes, tests, and exams** are the intellectual property of your instructor (**items bolded are shared with the student and the University**) and are for your personal use only.

6. Student Absences

If you are unable to meet a course requirement due to illness or other serious circumstances, please follow the procedures below.

Assessments worth less than 10% of the overall course grade:

Students missing an in-person assessment will have the weight of that assessment moved to the final exam without needing to submit documentation. A maximum of two in-person assessments/unit can be moved to the final exam to a maximum total of 9%.

Students missing a submitted assignment will be granted and extension on the assignment to a maximum total of 9% without needing to submit documentation. The extension will be for 1 week after the original deadline. Submissions after this time will receive a mark of 0.

Assessments worth 10% or more of the overall course grade:

For work **totalling** 10% or more of the final course grade, you must provide valid medical or supporting documentation to the Academic Counselling Office of your Faculty of Registration as soon as possible. For further information, please consult the University's medical illness policy at

https://www.uwo.ca/univsec/pdf/academic_policies/appeals/accommodation_medical.pdf.

The Student Medical Certificate is available at

https://www.uwo.ca/univsec/pdf/academic_policies/appeals/medicalform.pdf.

Students missing an assessment of 10% or more will be granted and extension on the assignment. The assignment will be submitted 1 week following the original deadline,

Absences from Final Examinations

If you miss the Final Exam, please contact the Academic Counselling office of your Faculty of Registration as soon as you are able to do so. They will assess your eligibility to write the Special Examination (the name given by the University to a makeup Final Exam).

You may also be eligible to write the Special Exam if you are in a "Multiple Exam Situation" (e.g., more than 2 exams in 23-hour period, more than 3 exams in a 47-hour period).

If a student fails to write a scheduled Special Examination, the date of the next Special Examination (if granted) normally will be the scheduled date for the final exam the next time this course is offered. The maximum course load for that term will be reduced by the credit of the course(s) for which the final examination has been deferred. See the Academic Calendar for details (under Special Examinations).

Note: missed work can *only* be excused through one of the mechanisms above. Being asked not to attend an in-person course requirement due to potential COVID-19 symptoms is **not** sufficient on its own.

6. Accommodation and Accessibility

Religious Accommodation

When a course requirement conflicts with a religious holiday that requires an absence from the University or prohibits certain activities, students should request accommodation for their absence in writing at least two weeks prior to the holiday to the course instructor and/or the Academic Counselling office of their Faculty of Registration. Please consult University's list of recognized religious holidays (updated annually) at

https://multiculturalcalendar.com/ecal/index.php?s=c-univwo.

Accommodation Policies
Students with disabilities are encouraged to contact Accessible Education, which provides recommendations for accommodation based on medical documentation or psychological and cognitive testing. The policy on Academic Accommodation for Students with Disabilities can be found at:

https://www.uwo.ca/univsec/pdf/academic_policies/appeals/Academic Accommodation_disabilities.pdf.

7. Academic Policies

The website for Registrarial Services is http://www.registrar.uwo.ca.

In accordance with policy,

https://www.uwo.ca/univsec/pdf/policies_procedures/section1/mapp113.pdf,

the centrally administered e-mail account provided to students will be considered the individual's official university e-mail address. It is the responsibility of the account holder to ensure that e-mail received from the University at their official university address is attended to in a timely manner.

The use of non-programmable scientific calculators at the final exam is permitted.

Scholastic offences are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, at the following Web site:

http://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_undergrad.pdf.

All required papers may be subject to submission for textual similarity review to the commercial plagiarism detection software under license to the University for the detection of plagiarism. All papers submitted for such checking will be included as source documents in the reference database for the purpose of detecting plagiarism of papers subsequently submitted to the system. Use of the service is subject to the licensing agreement, currently between The University of Western Ontario and Turnitin.com (http://www.turnitin.com).

8. Support Services

Please visit the Science & Basic Medical Sciences Academic Counselling webpage for information on adding/dropping courses, academic considerations for absences, appeals, exam conflicts, and many other academic related matters: https://www.uwo.ca/sci/counselling/.

Students who are in emotional/mental distress should refer to Mental Health@Western (https://uwo.ca/health/) for a complete list of options about how to obtain help.

Western is committed to reducing incidents of gender-based and sexual violence and providing compassionate support to anyone who has gone through these traumatic events. If you have experienced sexual or gender-based violence (either recently or in the past), you will find information about support services for survivors, including emergency contacts at

https://www.uwo.ca/health/student_support/survivor_support/get-help.html.

To connect with a case manager or set up an appointment, please contact support@uwo.ca.

Please contact the course instructor if you require lecture or printed material in an alternate format or if any other arrangements can make this course more accessible to you. You may also wish to contact Accessible Education at

http://academicsupport.uwo.ca/accessible_education/index.html

if you have any questions regarding accommodations.

Learning-skills counsellors at the Student Development Centre (https://learning.uwo.ca) are ready to help you improve your learning skills. They offer presentations on strategies for improving time management, multiple-choice exam preparation/writing, textbook reading, and more. Individual support is offered throughout the Fall/Winter terms in the drop-in Learning Help Centre, and year-round through individual counselling.

Western University is committed to a thriving campus as we deliver our courses in the mixed model of both virtual and face-to-face formats. We encourage you to check out the Digital Student Experience website to manage your academics and well-being: https://www.uwo.ca/se/digital/.

Additional student-run support services are offered by the USC, https://westernusc.ca/services/.

This course is supported by the Science Student Donation Fund. If you are a BSc or BMSc student registered in the Faculty of Science or Schulich School of Medicine and Dentistry, you pay the Science Student Donation Fee. This fee contributes to the Science Student Donation Fund, which is administered by the Science Students' Council (SSC). One or more grants from the Fund have allowed for the purchase of equipment integral to teaching this course. You may opt out of the Fee by the end of September of each academic year by completing the online form linked from the Faculty of Science's Academic Counselling site. For further information on the process of awarding grants from the Fund or how these grants have benefitted undergraduate education in this course, consult the Chair of the Department or email the Science Students' Council at ssc@uwo.ca.